

LCL RECONSTRUCTION

Physical Therapy Protocol

PATIENT

SURGEON

Andrew L. Merritt, MD

DATE OF SURGERY

PT START DATE

For the patient

The LCL (lateral collateral ligament) on the outer side of your knee was reconstructed. The graft needs about 6 weeks to start bonding to the bone, so you use crutches with only a toe-touch at first. **You bend and straighten your knee from day 1, within 0° to 90° in the brace.** Keeping it moving matters even while you can't put weight on it. After 6 weeks you add weight and the real strengthening begins. **No force that bows your knee outward, no deep side squats, and no pivoting for 12 weeks.**

PROTOCOL AT A GLANCE

WEIGHT BEARING	Toe-touch for 6 weeks , about 10 to 15 pounds, for balance. Then add weight over 4 to 6 weeks; off crutches by 10 to 12 weeks
BRACE	On at all times , set at 0–90°, including walking and sleep, for 6 weeks. Then opened for walking and weaned by 10 to 12 weeks
MOTION GOALS	Full straightening always. Bending 90° by week 2, no further than 90° until 6 weeks , then about 120° by weeks 8–10
PHYSICAL THERAPY	Starts 5 to 7 days after surgery, 2 times a week at first
KEY PRECAUTIONS	No outward (varus) force on the knee for 12 weeks. No pivoting. Bike: rocking only until week 6
RUNNING · SPORT	Running around 4 to 5 months . Cutting and contact sports no sooner than 6 months (usually 6 to 9), after testing

Recovery Timeline

Phase	When	PT visits	Focus
1	Weeks 0–6	2× a week	Toe-touch, brace 0–90°, motion to 90°, quad, swelling
2	Weeks 6–12	2× a week	Add weight, off crutches, motion beyond 90°, strength
3	Months 3–6	1–2× a week + home program	Progressive strength, running from months 4–5
4	Months 6–9	Weekly, as needed	Agility and cutting drills, testing, return to sport

For the Therapist

Check the surgeon notes first. They override anything else in this protocol. Questions or setbacks: call (425) 656-5060.

Surgeon notes and special instructions

General principles

- **Isolated LCL only.** This protocol applies to isolated LCL reconstruction. It does not apply to posterolateral corner (PLC) reconstruction or multi-ligament knee injury, which have separate protocols. The LCL is the primary restraint to varus stress and external tibial rotation.
- **Varus stress avoidance through 12 weeks.** The LCL resists varus force (the knee bowing outward). Activities that open the lateral joint space, such as varus loading, deep lateral squatting, and rapid pivoting, stress the graft.
- **Toe-touch for 6 weeks,** about 10–15 lb, for balance, to protect graft fixation during early bone-tunnel healing. Early full weight bearing creates a varus moment at the lateral compartment before fixation is strong enough.
- **Motion from day 1 within a hard 90° cap.** Passive and active-assisted motion 0–90° from day 1 prevents capsular contracture. No flexion past 90° until 6 weeks. Full passive extension is maintained throughout.
- **Hinged brace** unlocked 0–90°, worn 24 hours a day, including walking and sleep, through week 6.
- **Stationary bike under the cap:** rocking or partial revolutions within 0–90° only. Full revolutions from week 6.
- **NMES** is provided at PT visits if volitional quad activation is poor. No home unit is needed.
- **Cold therapy:** 20 minutes on, 20 minutes off, after exercise and as needed; compression wrap between sessions.

Activity timeline

LOW-IMPACT	Cycling and swimming from months 2–3
RUNNING	Months 4–5, when strength criteria are met
CUTTING · CONTACT	Minimum 6 months (typically 6–9), with criteria met

If posterolateral corner structures (popliteus, popliteofibular ligament, biceps femoris) were addressed, a separate PLC protocol applies.

PHASE

1

Graft Protection

Weeks 0–6

For the patient: what to expect

Your graft needs 6 weeks of careful protection while it bonds to the bone. Use your crutches with **only a toe-touch**, about 10 to 15 pounds, for balance. Your brace stays on day and night, set to bend from 0° to 90°. Bend and straighten your knee every day, but **not past 90°**. Keep the knee fully straight at rest.

WEIGHT BEARING	Toe-touch, about 10–15 lb for balance; crutches carry body weight. No partial or full weight bearing before week 6
BRACE	Hinged, unlocked 0–90°, worn 24 hours a day, including walking and sleep
MOTION	Passive and active-assisted 0–90° from day 1. Target 0–90° by the end of week 2, then hold the 90° cap to week 6. Prone hangs and heel props daily

Goals

- Toe-touch for 6 weeks to protect graft fixation
- Motion 0–90° without going past the cap
- Full passive extension maintained
- Quad activation: quad sets, SLR without a lag
- Swelling and pain controlled

Move on when

- ☐ Toe-touch maintained for 6 weeks
- ☐ Full passive extension (0°)
- ☐ Passive flexion 90° by week 2, held at 90° to week 6
- ☐ SLR without an extension lag
- ☐ Quad set with VMO activation

Exercises

Exercise	How
Motion	Passive, supine, 0–90°, 3 × 10, from day 1. Active-assisted heel slides 3 × 15
Extension	Prone hangs and heel props, 2 × 15 min daily
Quad sets · SLR	Quad sets 3 × 15, every 1–2 hours. SLR with brace locked, 4 planes, 3 × 10
Hip strengthening	Side-lying abduction, prone hip extension; 3 × 15
Stationary bike	Rocking or partial revolutions within 0–90° only; seat high, low resistance
NMES	At PT visits, if the quad is inhibited
Ice	20 min on, 20 min off; compression wrap between sessions

Precautions

- Toe-touch for 6 weeks: full weight bearing creates a varus moment before graft-tunnel fixation can resist it
- Brace unlocked 0–90° and worn 24 hours a day, including all walking and sleep
- No varus-directed force: no medial-to-lateral knee stress, no deep lateral squatting, no unsupported standing
- No flexion past 90°; no pivoting, cutting, or rotational loading

Why: The LCL graft integrates into its bone tunnels over the first 6 weeks. Varus loads directly tension the LCL and risk graft pull-out or tunnel widening before then.

PHASE

2

Progressive Weight Bearing and Motion

Weeks 6–12

For the patient: what to expect

At 6 weeks you start adding weight and work off your crutches over 4 to 6 weeks, usually by 10 to 12 weeks. The 90° limit ends, and your therapist works toward about 120° of bending by weeks 8 to 10, then full motion. You can pedal the bike fully now. The brace is opened and is weaned as your strength improves.

WEIGHT BEARING	Advance from week 6: 2 crutches (weeks 6–8) → 1 crutch (weeks 8–10) → none (weeks 10–12)
BRACE	Unlocked at week 6; worn for walking through week 10, weaned by weeks 10–12
MOTION	90° cap lifted at week 6. About 120° by weeks 8–10, then full

Goals

- Full weight bearing without a device by weeks 10–12
- Normal gait on all surfaces
- Flexion about 120° by weeks 8–10, then full
- Quad strength 60–70% of the other leg

Move on when

- ☐ Full weight bearing without a crutch, normal gait
- ☐ Full active motion
- ☐ Squat to 90° × 15 without pain
- ☐ Quad strength 60–70% of the other leg

Exercises

Exercise	How
Stationary bike	Full revolutions from week 6; 20–30 min, progress resistance
Squats · leg press	Mini squats 0–60°, 3 × 15, to 90° by week 10. Leg press both legs 0–90°, 3 × 12
Step-ups	4–6-inch step; 3 × 10
Hamstring · hip	Hamstring curls with band 3 × 15. Standing hip abduction and extension with band 3 × 15
Balance · calves	Single-leg balance, firm then foam, 3 × 30–45 sec. Calf raises, both legs then single, 3 × 15
Elliptical	From week 10

Precautions

- No varus-loaded activities through week 12: no deep lateral lunges, no lateral cutting
- No running or impact activities
- Lateral knee swelling or pain with weight bearing: contact the surgeon

Why: Ligamentization begins around weeks 6–8, but the graft is not ready for lateral compartment loading until week 12 or later.

PHASE

3

Strengthening and Running

Months 3–6

For the patient: what to expect

Now you build full strength. Running usually starts around 4 to 5 months, once you meet the strength goals, and jumping drills follow. Cutting and contact sports wait until at least 6 months, after testing.

ACTIVITY	Full weight bearing and motion. No brace routinely
RUNNING	Running program at months 4–5, when strength criteria are met

Goals

- Progressive strength toward $\geq 90\%$ of the other leg
- Running program from months 4–5
- Plyometric foundation

Move on when

- ☐ Running 20 min without pain
- ☐ Controlled single-leg squat
- ☐ Plyometrics without pain or swelling

Exercises

Exercise	How
Squats · leg press	Full-depth squats with load. Single-leg press 3 × 12
Step-ups · step-downs	8-inch step; 3 × 10
Lateral band walks	3 × 15 each direction
Single-leg squat	3 × 10–12
Running program	Walk-jog intervals → continuous running, from months 4–5
Plyometrics	Both legs → single leg

Precautions

- No cutting or contact sport before 6 months
- Lateral instability (giving way, apprehension with cutting): surgeon evaluation before sport clearance

Why: Graft maturation continues through months 4–6. Cutting and pivoting create large varus and rotational loads at the lateral compartment.

PHASE

4

Return to Sport

Months 6–9

For the patient: what to expect

You add agility and cutting drills and practice your sport. You'll pass strength and hop tests before Dr. Merritt clears you to return to cutting or contact sports, usually **6 to 9 months** after surgery.

ACTIVITY

Full, once criteria are met

Goals

- Quad and hamstring strength $\geq 90\%$ of the other leg
- Hop test $\geq 90\%$ limb symmetry index
- Full return to sport

Move on when

- ☐ Quad and hamstring $\geq 90\%$ of the other leg
- ☐ Hop test $\geq 90\%$ limb symmetry index
- ☐ Cutting and lateral movement without pain or instability
- ☐ Surgeon clearance

Exercises

Exercise	How
Phase 3 program	Continue with progressive load
Agility · cutting drills	Sport-specific agility and cutting drills
Sport-specific training	Sport-specific training and final strength and hop testing

Precautions

- Contact and cutting sport: minimum 6 months (typically 6–9), with strength criteria met
- Lateral instability symptoms: surgeon evaluation before clearance

Why: Strength and functional testing make sure the graft and the muscles around it can absorb cutting and pivoting loads before unrestricted return.

Return to Sport

All criteria must be met before clearance.

Measure	Target
Time from surgery	At least 6 months for cutting and contact sport (typically 6–9 months)
Quadriceps strength	≥90% of the other leg
Hamstring strength	≥90% of the other leg
Hop testing	≥90% limb symmetry index
Clinical exam	No lateral instability
Motion	Full, pain-free
Clearance	Formal clearance from Dr. Merritt

Functional testing

- Quad and hamstring strength compared with the other leg
- Hop testing (limb symmetry index)
- Clinical exam for varus stability